RESOLUTION NO. 2007-184

A RESOLUTION OF THE LODI CITY COUNCIL ACCEPTING THE REQUIRED *REPORT ON WATER QUALITY RELATIVE* TO PUBLIC HEALTH

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NOW, THEREFORE, BE IT RESOLVED that the Lodi City Council does hereby accept the required Report on Water Quality Relative to Public Health, as shown on Exhibit A attached hereto.

Dated: September 5, 2007

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I hereby certify that Resolution No. 2007-184 was passed and adopted by the City Council of the City of Lodi in a regular meeting held September 5, 2007, by the following vote:

AYES:	COUNCIL MEMBERS –	Hansen, Hitchcock, Katzakian, Mounce, and Mayor Johnson
NOES:	COUNCIL MEMBERS –	None
ABSENT:	COUNCIL MEMBERS –	None
ABSTAIN:	COUNCIL MEMBERS –	None

RANDI JOHL
City Clerk

EXHIBIT A

CITY OF LODI

REPORT ON WATER QUALITY
RELATIVE TO PUBLIC HEALTH GOALS
JUNE, 2007

Background

Provisions of the California Health and Safety Code, Title 22, Section 116470, specify that larger water utilities (more than 10,000 service connections), are required to prepare a special report every three years detailing if their water quality measurements have exceeded any Public Health goals (PHGs). These are non-enforceable goals established by the Cal-EPA's Office of Environmental Health Hazard Assessment. As of January 1, 2007 Cal-EPA has adopted 93 PHGs. The law also requires that where Cal-EPA has not adopted a PHG for a constituent, the water suppliers are to use the enforceable Maximum Contaminant Level Goals (MCLGs) adopted by the United States Environmental Protection Agency (U.S. EPA). Only constituents which have a California primary drinking water standard and for which either a PHG or MCLG has been set are to be addressed per regulations.

The law specifies what information is to be provided in the report. If a constituent was detected in the water supply at a level exceeding an applicable PHG or MCLG, this report provides the information required by law. Included are:

- The numerical public health risk associated with the Maximum Contaminant Level (MCL) and the PHG or MCLG;
- The category or type of risk to health that could be associated with each constituent;
- The best treatment technology available that could be used to reduce the constituent level;
- An estimate of the cost to install that treatment if it is appropriate and feasible.

What are PHGs?

PHGs are Public Health Goals set by the California Environmental Protection Agency's Office of Environmental Health Hazard Assessment and are based solely on public health risk considerations. None of the practical risk-management factors that are considered by the U.S. EPA or the California Department of Health Services in setting enforceable drinking water standards (Maximum Contaminant Levels or MCLs) are considered in setting the PHGs. These factors include analytical detection capability, treatment technology available, benefits and costs. The PHGs are not enforceable and are not required to be met by any public water system. MCLGs are the federal equivalent to PHGs.

Water Quality Data Considered:

All of the water quality data collected by our water system in 2004 - 2006 for purposes of determining compliance with drinking water standards was considered. In the attached 2006 Annual Water Quality Report which was mailed to our customers in April 2007, only data

from 2006 was summarized. The attached 2006 Annual Water Quality Report also contains useful definitions for PHG, MCLG, MCL, microgram per liter, and milligram per liter.

Guidelines Followed:

The Association of California Water Agencies prepared guidelines for water utilities to use in preparing these required reports, and these guidelines were used in the preparation of our report. No guidance was available from state regulatory agencies.

Best Available Treatment Technology and Cost Estimates:

Both the U.S. EPA and the California Department of Health Services adopt what are known as Best Available Technologies or BATs which are the best known methods of reducing contaminant levels to the MCL. Costs can be estimated for such technologies. However, since many PHGs and all MCLGs are set much lower than the MCL, it is not always possible, nor feasible to determine what treatment is needed to further reduce a constituent downward to or near the PHG or MCLG, many of which are set at zero. Estimating the costs to reduce a constituent to zero is difficult, if not impossible, because it is not possible to verify by analytical means that the level has been lowered to a zero. In some cases, installing treatment to try and further reduce very low levels of one constituent may have adverse effects on other aspects of water quality. For example; to meet the Copper PHG, chemicals to further coat home plumbing would need to be added to Lodi's drinking water, and in GAC treatment systems, more frequent change outs of carbon and larger vessels keeping water in contact with activated carbon longer can both increase the risk of bacterial contamination.

The estimates below reflect only wellhead treatment capital and annual operation and maintenance costs for typical wells. Design, potential costs for additional land and other site specific requirements are not included, thus the potential costs are understated. These costs are not indicative of the total past and potential future costs to remediate groundwater throughout Lodi.

Constituents Detected That Exceed a PHG or a MCLG:

The following is a discussion of constituents that were detected in one or more of our drinking water sources at levels above the PHG, or if no PHG, above the MCLG.

Trichloroethylene (TCE): The PHG for TCE is 0.8 micrograms per liter (ug/L or parts per billion). The MCL or drinking water standard for TCE is 5 ug/L. We detected TCE at levels not exceeding the MCL in the discharges from 1 of Lodi's 25 City Wells used in 2006. The average for this City Well in 2004-06 was:

City Well No. 2 - 1.4 ug/L

The category of health risk associated with TCE, and the reason that a drinking water standard was adopted for it, is the people who drink water containing TCE above the MCL throughout their lifetime could theoretically experience an increased risk of getting cancer. The California Department of Health Services says that "Drinking water which meets this standard

*All annual customer costs were based on an assumed annualized cost of capital expenditures equal to 10% of capital costs plus annual and maintenance costs divided by 23,000 customers.

(the MCL) is associated with little to none of this risk and should be considered safe with respect to TCE." (*CDHS Blue Book of drinking water law and regulations, Section 64468.2, Title 22, CCR.*) The Best Available Technology for TCE to lower the level below the MCL is either Granular Activated Carbon or Packed Tower Aeration. Since the TCE level in these two City Wells is already below the MCL, a Granular Activated Carbon Treatment System with larger vessels would likely be required to attempt to keep TCE levels to below 0.8 ug/L. The estimated cost to install such a treatment system on one City Well and enhance the capacity on one City Well with an existing treatment system that would reliably reduce the TCE level to below 0.8 ug/L would be approximately $450,000 and require annual Operation and Maintenance at a cost of approximately $5 per year. This would result in an assumed increased cost for each customer of approximately $5 per year*.

Dibromochloropropane (DBCP): The PHG for DBCP is 1.7 nanograms per liter (ng/L or parts per trillion). The MCL for DBCP is 200 ng/L. We detected DBCP at levels not exceeding the MCL in the discharges from thirteen of Lodi's 25 City Wells used in 2006. City Well No. 8 was not used in 2006, but could be used if treatment were installed and is included as a fourteenth City Well below in cost calculations. The averages for these City Wells in 2004-06 were:

City Well No. 1R	-	89 ng/L
City Well No. 4R	-	39 ng/L
City Well No. 6R	-	160 ng/L
City Well No. 8	-	252 ng/L
City Well No. 13	-	81 ng/L
City Well No. 14	-	84 ng/L
City Well No. 16	-	13 ng/L
City Well No. 17	-	180 ng/L
City Well No. 18	-	35 ng/L
City Well No. 19	-	110 ng/L
City Well No. 20	-	46 ng/L
City Well No. 21	-	4 ng/L
City Well No. 22	-	22 ng/L
City Well No. 23	-	40 ng/L

The category for health risk associated with DBCP, and the reason that a drinking water standard was adopted for it, is the people who drink water containing DBCP above the MCL throughout their lifetime could theoretically experience an increased risk of getting cancer. The California Department of Health Services says that "Drinking water which meets this standard (the MCL) is associated with little to none of this risk and should be considered safe with respect to DBCP." *(CDHS Blue Book of drinking water law and regulations, Section 64468.3, Title 22, CCR.)* The numerical health risk for an MCLG of zero is zero. The Best Available Technology for DBCP to lower the level below the MCL is either Granular Activated Carbon or Packed Tower Aeration. To attempt to maintain the DBCP levels at

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zero, Granular Activated Carbon Treatment Systems with longer empty bed contact times and more frequent carbon change-outs would likely be required. The estimated cost to install such a treatment system on eight City Wells, and enhance capacities on six City Wells with existing treatment systems that would reliably reduce the DBCP level to zero would be approximately $3.2 million. The increased annual Operation and Maintenance costs would be approximately $480,000 per year. This would result in an assumed increased cost for each customer of approximately $34 per year*. (Note: this increase cost may not be reimbursable under the terms of Lodi's settlement agreement with DBCP manufacturers.)

1,1,2,2- Tetrachloroethylene (PCE) : The PHG for PCE is 0.06 micrograms per liter (ug/L or parts per billion). The MCL or drinking water standard for PCE is 5 ug/L. We detected PCE at levels not exceeding the MCL in the discharges from two (2) of Lodi's 25 City Wells used in 2006. City Well No. 8 was not used in 2006, but could be used if treatment were installed and is included as a third City Well below in cost calculations. The averages of these City Wells in 2004 -06 were:

City Well No. 6R	-	1.08 ug/L
City Well No. 8	-	0.82 ug/L
City Well No. 12	-	0.26 ug/L

The category of health risk associated with PCE, and the reason that a drinking water standard was adopted for it, is the people who drink water containing PCE above the MCL throughout their lifetime could theoretically experience an increased risk of getting cancer. The California Department of Health Services says that "Drinking water which meets this standard (the MCL) is associated with little to none of this risk and should be considered safe with respect to PCE." (*CDHS Blue Book of drinking water law and regulations, Section 64468.2, Title 22, CCR.*) The Best Available Technology for PCE to lower the level below the MCL is either Granular Activated Carbon or Packed Tower Aeration. Since the PCE level in these three City Wells is already below the MCL, a Granular Activated Carbon Treatment System with larger vessels would likely be required to attempt to keep PCE levels below the PHG. The estimated cost to install such a treatment system on three City Wells that would reliably reduce the PCE level to the PHG of 0.6 ug/L would be approximately $1,350,000 and require annual Operation and Maintenance at a cost of approximately $164,000 per year. This would result in an assumed increased cost for each customer of approximately $13 per year*.

Coliform Bacteria: In 2004-06, we collected 3,189 samples from our distribution system for coliform analysis. Of these samples, 0.75% were positive for coliform bacteria. In 2004-06 a maximum of 6.9% (January 2004) of these samples were positive for one month.

The MCL for coliform is 5% positive samples of all samples per month and the MCLG is zero. The reason for the coliform drinking water standard is to minimize the possibility of the water containing pathogens which are organisms that cause waterborne disease. Because coliform is only an indicator of the potential presence of pathogens, it is not possible to state a specific numerical health risk. While U.S. EPA normally sets MCLGs "at a level where no

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known or anticipated adverse effects on persons would occur" they indicate that they cannot do so with coliforms.

Coliform bacteria are organisms that are found just about everywhere in nature and are not generally considered harmful. They are used as an indicator because of the ease in monitoring and analysis. If a positive sample is found, it indicates a potential problem that needs to be investigated and follow up sampling done. It is not at all unusual for a system to have an occasional positive sample. It is difficult, if not impossible, to assure that a system will never get a positive sample. A further test that is performed on all total coliform positive results is for Fecal Coliform or E. Coli. There were no positive Fecal Coliform or E. Coli results in 2004-06.

To reduce the number of positive results for coliform bacteria, the City of Lodi occasionally chlorinates the water system. The sources of water (City Wells) and all new or repaired water mains follow disinfection procedures and pass bacteriological testing before being allowed "on-line".

Full time chlorination will not guarantee that a system will never get a positive sample. If the City were to go to full time chlorination of the drinking water system, the estimated cost to install chlorine generation systems on twenty-six City Wells would be approximately $1,035,000 and annual Operation and Maintenance cost would be approximately $65,000 per year. This would result in an assumed increased cost for each customer of approximately $7 per year.*

Copper: The PHG for copper is 0.17 milligrams per liter (mg/L or parts per million). There is no MCL for Copper. Instead the 90th percentile value of all samples from household taps in the distribution system cannot exceed an Action Level of 1.3 mg/L.

The category of health risk for copper is gastrointestinal irritation.

All of Lodi's source water samples for copper in 2004-06 were less than the PHG. Based on sampling of the distribution system in 2006, our 90th percentile value for copper was 0.32 mg/L.

Our water system is in full compliance with the Federal and State Lead and Copper Rule. Based on sampling, it was determined, based on State regulatory requirements, that Lodi meets the Action Level for copper. Therefore, based on criteria set forth by the California Department of Health Services we meet the criteria for "optimized corrosion control" for our system.

In general, optimizing corrosion control is considered to be the best available technology to deal with corrosion issues and with any copper findings. We continue to monitor our water quality parameters that relate to corrosivity, such as the pH, hardness, alkalinity, total

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dissolved solids, and will take action if necessary to maintain our system in an "optimized corrosion control" condition.

Since we are meeting the "optimized corrosion control" requirements, there is no apparent reason to initiate additional corrosion control treatment as it involves the addition of other chemicals and there could be additional water quality issues raised. Therefore, no estimate of cost has been included.

Arsenic: The PHG for Arsenic is 0.004 micrograms per Liter (ug/L or parts per billion). The MCL, or drinking water standard for arsenic is 10 ug/L. There were arsenic levels detected at levels not exceeding the MCL in discharges from 25 of Lodi's 26 wells used in 2004-06. The average of these wells in 2004-06 were:

City Well No. 1R	-	6.0 ug/L
City Well No. 2	-	3.1 ug/L
City Well No. 3R	-	5.4 ug/L
City Well No. 4R	-	3.9 ug/L
City Well No. 5	-	5.1 ug/L
City Well No. 6R	-	3.7 ug/L
City Well No. 7	-	5.0 ug/L
City Well No. 8	-	2.2 ug/L
City Well No. 9	-	2.7 ug/L
City Well No. 10	-	2.7 ug/L
City Well No. 11	-	5.2 ug/L
City Well No. 13	-	8.8 ug/L
City Well No. 14	-	4.1 ug/L
City Well No. 15	-	5.1 ug/L
City Well No. 16	-	3.4 ug/L
City Well No. 17	-	4.1 ug/L
City Well No. 18	-	2.7 ug/L
City Well No. 19	-	3.2 ug/L
City Well No. 20	-	3.5 ug/L
City Well No. 21	-	3.3 ug/L
City Well No. 22	-	2.4 ug/L
City Well No. 23	-	3.8 ug/L
City Well No. 24	-	6.6 ug/L
City Well No. 25	-	6.8 ug/L
City Well No. 26	-	9.7 ug/L

Arsenic is a naturally occurring element found in many types of rocks and soils. Leaching of these deposits are the primary source of arsenic found in this area. Some people who drink water containing arsenic in excess of the MCL over many years may experience skin damage

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or circulatory system problems, and may have an increased risk of getting cancer. The PHG of 0.004 ug/L for arsenic is far below the Detection Limit Requirement (DLR) of 2 ug/L for arsenic. The DLR is the level that can be reliably determined by current laboratory methods.

The Best Available Treatment (BAT) for arsenic removal is dependant on the water chemistry of the source to be treated. While research into new methods of removing arsenic continues, the current recommendations include:

- Activated Alumina
- Coagulation / Filtration
- Lime Softening
- Reverse Osmosis

All of the above listed methods take space, are expensive, and have a concentrated residual, which requires safe disposal. An estimate of the best approach for arsenic removal in Lodi cannot be made at this time.

Radium-228: The PHG for radium-228 is 0.019 picocuries per liter (pCi/L). There is no MCL, or drinking water standard for radium-228. There were radium-228 levels detected in discharges from 17 of Lodi's 26 City Wells used in 2004-06. The average of these wells in 2004-06 were:

City Well No. 1R	-	0.211 pCi/l
City Well No. 2	-	0.012 pCi/l
City Well No. 3R	-	0.075 pCi/l
City Well No. 6R	-	0.231 pCi/l
City Well No. 8	-	0.176 pCi/l
City Well No. 10	-	0.319 pCi/l
City Well No. 12	-	0.041 pCi/l
City Well No. 14	-	0.211 pCi/l
City Well No. 15	-	0.172 pCi/l
City Well No. 16	-	0.115 pCi/l
City Well No. 17	-	0.456 pCi/l
City Well No. 19	-	0.326 pCi/l
City Well No. 21	-	0.240 pCi/l
City Well No. 22	-	0.373 pCi/l
City Well No. 24	-	0.413 pCi/l
City Well No. 25	-	0.142 pCi/l
City Well No. 26	-	0.041 pCi/l

The California Department of Health Services (CDHS), which sets drinking water standards, has determined that total radium is a health concern at certain levels of exposure. This radiological constituent is a naturally occurring contaminant in some groundwater and surface water supplies. This constituent has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Constituents

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that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time.

The Best Available Technology identified to treat the removal of the radiological constituents listed above is reverse osmosis (RO) treatment. The most effective and economical treatment system is to use RO treatment at select plant sites. The estimated cost to install such a treatment system on seventeen City Wells that would reliably reduce the Radium-228 level to the PHG of 0.019 pCi/L would be approximately $20,000,000 and require annual Operation and Maintenance at a cost of approximately $850,000 per year. This would result in an assumed increased cost for each customer of approximately $125 per year*.

Uranium: The PHG for Uranium is 0.43 picocuries per liter (pCi/L). The MCL or drinking water standard for Uranium is 20 pCi/L. There were Uranium levels detected at levels not exceeding the MCL in discharges from 16 of Lodi's 26 City wells used in 2004-06. The average of these wells in 2004-06 were:

City Well No.	2	-	2.79	pCi/l
City Well No.	4R	-	0.310	pCi/l
City Well No.	6R	-	4.66	pCi/l
City Well No.	8	-	10.9	pCi/l
City Well No.	9	-	2.42	pCi/l
City Well No.	10C	-	0.942	pCi/l
City Well No.	12	-	15.8	pCi/l
City Well No.	13	-	2.34	pCi/l
City Well No.	14	-	2.48	pCi/l
City Well No.	16	-	2.10	pCi/l
City Well No.	17	-	5.34	pCi/l
City Well No.	18	-	8.24	pCi/l
City Well No.	19	-	1.09	pCi/l
City Well No.	20	-	1.22	pCi/l
City Well No.	22	-	4.07	pCi/l
City Well No.	23	-	8.14	pCi/l

The California Department of Health Services (CDHS), which sets drinking water standards, has determined that total Uranium is a health concern at certain levels of exposure. This radiological constituent is a naturally occurring contaminant in some groundwater and surface water supplies. This constituent has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Constituents that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time.

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The Best Available Technologies (BATs) for removal of Uranium from drinking water are: Ion Exchange - Reverse Osmosis or Lime Softening. These methods are expensive and require disposal of a waste stream, which would contain concentrated radionucleotides. The estimated cost to install such a treatment system on fifteen City Wells that would reliably reduce the Uranium level to the PHG of 0.43 pCi/L would be approximately $18,000,000 and require annual Operation and Maintenance at a cost of approximately $750,000 per year. This would result in an assumed increased cost for each customer of approximately $110 per year*.

Recommendations For Further Action:

The drinking water quality of the City of Lodi Public Water System meets all State of California, Department of Health Services and U.S. EPA drinking water standards set to protect public health. To further reduce the levels of the constituent's identified in this report that are already below the Maximum Contaminant Levels established by the State and Federal government, additional costly treatment processes would be required.

The effectiveness of the treatment processes to provide any significant reductions in constituent levels at these already low values is uncertain. The theoretical health protection benefits of these further hypothetical reductions are not at all clear and may not be quantifiable. Therefore, staff is not recommending further action at this time. However, the point of this process is to provide you with information on water quality in Lodi and rough costs to make certain improvements.

This report was completed by City of Lodi Public Works Department staff. Any questions relating to this report should be directed to: City of Lodi, Water/Wastewater Superintendent Frank Beeler, 1331 South Ham Lane, Lodi, CA 95242 or call (209) 333-6740.

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City of Lodi
Annual Water Quality Report for 2006

(published April 2007)

Keeping you, the Citizens of Lodi, informed about your drinking water.

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo ó hable con alguien que lo entienda bien. Para la ayuda en español, llama por favor (209) 333-6740.

This 18th Annual Water Quality Report summarizes testing on Lodi's water supply by State certified laboratories and provides information about the water system. This report follows the "Consumer Confidence Report" (CCR) format required by the U.S. Environmental Protection Agency and the State of California.

WHO ARE WE?

In 1910 your City of Lodi Water Utility officially began operation along with the Electric Utility, and for 96 years, the water system has been owned by the Citizens of Lodi. Ninety-six years ago there were only two wells and a few miles of water mains. In 2006 there were twenty-six wells, over 220 miles of mains, a water tower and a 1-million-gallon storage tank. Lodi delivers water to approximately 23,000 residential, commercial and industrial customers.

Water rates, system expansion projects, and significant purchases are authorized by the Lodi City Council, which serves as the water utility's official regulatory body. **Lodi City Council meetings are open to the public and are scheduled for the first and third Wednesdays of each month at 305 West Pine Street in Lodi at 7:00 p.m.** You may also communicate with the Council and City staff through the City's web site (www.lodi.gov).

YOUR DRINKING WATER SYSTEM

Twenty-six computer controlled wells, located throughout the City, provide high quality groundwater, and was our sole source of supply in 2006. The wells operate automatically on water pressure demand so that when water use increases, more wells are started. To keep up with peak water supply demands, a new well is planned for 2007. The costs of new wells are paid by development fees. However, the groundwater basin is being depleted. Lodi has contracted to use some surface water from the Mokelumne River. The City has begun studies to treat this water and use it directly, thereby reducing groundwater pumping. More information on water supply is on the City's web site.

Seven wells are fitted with emergency diesel-powered generators. (While these generators will help maintain water pressure during power outages, please refrain from using water during power outages to save capacity for essential uses, - hospitals, fire fighting, etc.)

The water delivered to your tap meets or is better than all federal and state water quality standards.

If you have any questions about this report or Lodi's water quality, please contact:

Water/Wastewater Superintendent
Frank Beeler
1331 S. Ham Lane, Lodi, CA 95242
Telephone: (209) 333-6740
E-mail: fbeeler@lodi.gov

WATER QUALITY

Lodi is fortunate in having a high quality groundwater supply. However, that supply is at risk and must be carefully managed. The following section describes some of these measures.

- **PCE/TCE** - The City, working with regulatory agencies and potentially responsible parties in a cooperative manner, is pursuing a resolution to a groundwater contamination problem in the north and central Lodi area. While no operating wells are out of compliance with any drinking water standards, the contamination is a serious threat. PCE (Tetrachloroethylene) and TCE (Trichloroethylene) have been detected in samples taken in soils and groundwater. Cleanup work in portions of the area has commenced and the City expects additional areas to commence cleanup work in 2007/08. The City's share of these costs has largely been determined and a series of rate adjustments has been adopted. More information on this can be found on the City's website.

- **Bacteriological Quality, Chlorination** - Lodi takes over 20 samples per week from throughout Lodi's water distribution system for bacterial water quality. Regulations allow for 5% of all total coliform samples in a month to be positive. In 2006 all bacteriological standards were met.

The water may be periodically chlorinated as a proactive step to help keep the water system in compliance with strict bacteriological standards; however, Lodi's water does not normally contain chlorine. The City will make an effort to inform you in local newspapers before your water is chlorinated. When necessary however, the water may be chlorinated before you can be informed.

- **MTBE** - MTBE (Methyl-Tert-Butyl-Ether) is a controversial additive to gasoline that has been in the news the past few years. One of the main concerns with MTBE is the threat of leaking from service stations into the groundwater. Monitoring of City wells has NOT found any detected traces of MTBE to date. The City has a program of monitoring all City wells for MTBE. Wells that are at greater risk (i.e., closer to gasoline stations) are monitored more frequently.

- **DBCP** - Dibromochloropropane (DBCP) was used by area farmers to kill nematodes in vineyards. DBCP was banned in California in 1977, but is still present in trace levels in some groundwater. The City of Lodi used 25 (of 26) wells to provide drinking water in 2006. The wells are rotated so over the course of time, water being delivered is a blend from these wells. Thirteen of Lodi's wells had no detectable DBCP. Six wells have filters to remove DBCP. The remaining six meet State and Federal standards, but have trace amounts of DBCP. The result is that the people of Lodi are being served water below the DBCP level deemed safe by the U.S. EPA and the State of California.

In 1996 the City settled a lawsuit against DBCP manufacturers, who have already paid the City for a large portion of Lodi's costs related to DBCP treatment. These manufacturers will continue to pay a large portion of the City's DBCP related costs for the settlement's 40-year term.

- **Drinking Water Source Assessment** - An assessment of the drinking water sources for the City of Lodi's water system was completed in February 2003. The sources are considered most vulnerable to the following activities: gas stations (current and historic), chemical/petroleum processing/storage, metal plating/ finishing/fabricating, plastic/synthetics producers, dry cleaners, known contaminant plumes, sewer collection systems, fleet/truck/bus terminals, machine shops, utility stations-maintenance areas, agricultural drainage, and photo processing/printing.

A copy of the completed assessment is available at the Public Works Department, City of Lodi, 1331 South Ham Lane, Lodi, CA 95242. You may request that a copy be sent to you by contacting Frank Beeler at (209) 333-6740. A copy of the complete assessment is also available at the Department of Health Services, Drinking Water Field Operations Branch, Stockton District Office, 31 E Channel Street, Room 270, Stockton, California 95202. You may also request that a copy be sent to you by contacting Joseph O. Spano, District Engineer, at (209) 948-7696

IF YOU HAVE A WATER PROBLEM

-Many times, water quality problems in the home can be traced to the hot water heater, the plastic water lines under the sink to faucets, or because sewer gases from the drain are being smelled.

-Set the hot water heater at the proper temperature, too hot can create heavier scaling problems, and not warm enough can allow bacteria to grow.

-Other times there can be occasional water quality problems associated with the aesthetic quality of your water such as sand, which may be originating from water supply mains.

-"Hard" water can be considered a quality issue depending on the actual hardness level and the use. Some industrial processes require very soft water. Lodi's groundwater is at the low end of the "moderately hard" water range and you may see white scale or spots on plumbing fixtures.

-If you have a filter or in-home treatment system; be sure it's working properly and change filters regularly. (Note, if you use a water softener, we suggest you utilize one which is regenerated by the softener company. Self-regenerating units add salt to the wastewater, which can add significantly to the City's wastewater treatment costs.)

-Low pressure can lead to water quality problems and can be caused by plugged screens in faucets or washing machine hoses, broken valves or for other reasons. If you have intermittent problems, first check pressure in other parts of your house or at an outside faucet. If that pressure is okay, check the fixture/screens at the problem area. If the problem is throughout the whole house, call the City for assistance.

If you ever experience trouble with your water, and you do not think it is a problem with your on-site plumbing, please call the Water/Wastewater Division at 368-5735 or 333-6740.

WATER CONSERVATION

In 2006, 5.313 billion gallons of groundwater were pumped to meet Lodi's water demands. This is 26% less water use per person than in 1986. As population in Lodi and California increases, water conservation becomes an important part of meeting demands for fresh water.

The commitment of the citizens of Lodi to conserving water also helps conserve the electrical energy needed to pump the water to homes and businesses. To further conserve water, electrical energy, and wastewater treatment plant capacity, the City has instituted a rebate program for water saving devices such as low-flow toilets. See details below.

Your diligent water conservation practices, as in the past, are needed in 2007. A report calculated dollar savings from water conservation to be far above the cost of the Water Conservation Program! Your water conservation efforts have also averted millions of dollars in capital costs, helping rates stay as low as possible. The millions of dollars in capital cost savings can easily be lost if water conservation is not continued.

See the summary of the Lodi Water Conservation Ordinance at: http://www.lodi.gov/public%5Fworks/water%5Fconservation.html For information or to report a water waste, call the Water Conservation office at 333-6829.

$ Water Conservation Rebate Program $

The City of Lodi is offering rebates on the purchase and installation of water conserving devices at residential and commercial water customer premises within the City of Lodi.

Rebates of up to $44 are given for Ultra Low-Flow Toilets rated at 1.6 gallons per flush or less and must be replacing units using a higher volume of water per flush. Rebates of up to $100 are available for pressure assist PF/2 Ultra Low-Flow 1.6 gallon toilets. Additional rebates of 50% are available on Low-Flow Shower Heads, Insulated Hot Water Blankets, and Hose Bib Manual Timers for outside water hoses.

The program is funded by the Water, Wastewater and Electric Utilities. ***The rebates, given in the store at the time of purchase, are only available at the following Lodi stores:***

Ace Hardware • 827 West Kettleman Lane
Orchard Super Hardware • 360 South Cherokee Lane
Ferguson Enterprises, Inc • 1435 Academy Street

Call (209) 333-6740 for more details.

THE FOLLOWING MESSAGES ARE REQUIRED BY THE U.S. EPA AND THE STATE OF CALIFORNIA. NOT ALL PORTIONS OF THESE MESSAGES NECESSARILY APPLY TO *LODI'S GROUNDWATER .*

• Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline at (1-800-426-4791).

• Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA/Centers for Disease Control (CDC) guidelines on appropriate means to lesson the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

• The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

• Contaminants that may be present in source water include:

  • Microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plant, septic systems, agricultural livestock operations, and wildlife.

  • Inorganic contaminants, such as salts and metals, that can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

  • Pesticides and herbicides, that may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

  • Organic chemical contaminants, including synthetic and volatile organic chemicals, that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application, and septic systems.

  • Radioactive contaminants, that can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, US Environmental Protection Agency (USEPA) and the State California Department of Health Services (Department) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Department regulations also establish limits for contaminants in bottled water that must provide the same protection for public health.

RADON *is a naturally occurring radioactive gas that you can't see, taste, or smell.* It is found throughout the U.S. Radon can move up through the ground and into a home through cracks and holes in the foundation. Radon can build up to high levels in all types of homes. Radon can also get into indoor air when released from tap water from showering, washing dishes, and other household activities. Compared to radon entering the home through soil, radon entering the home through tap water will in most cases be a small source of radon in indoor air. Radon is a known human carcinogen. Breathing air-containing radon can lead to lung cancer. Drinking water containing radon may also cause increased risk of stomach cancer. If you are concerned about radon in your home, test the air in your home. Testing is inexpensive and easy. Fix your home if the level of radon in your air is 4 picocuries per liter of air (pCi/L) or higher. There are simple ways to fix a radon problem that aren't too costly. For additional information, call your State radon program or call EPA's Radon Hotline (1-800-SOS-RADON).

ARSENIC: *After a long debate, the drinking water standard for Arsenic was lowered from 50 ppb (parts per billion) to 10 ppb. The following message is required for systems that have some sources containing Arsenic below the new standard of 10 ppb, but over half (5 ppb). The average in Lodi's wells is 4.4 ppb and the highest well is 9.7 ppb.*

While your drinking water meets the current EPA standard for arsenic, it does contain low levels of arsenic. The standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. The California Department of Health Services continues to research the health

effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

NITRATE: *The following message is required for systems that have some sources containing Nitrate below the standard of 45 ppm (as NO3), but over half (23 ppm) of the standard. The average of Lodi's wells is 9.2 ppm and the highest well is 36 ppm.*
Nitrate in drinking water at levels above 45 mg/L is a health risk for infants of less than six months of age. Such nitrate levels in drinking water can interfere with the capacity of the infant's blood to carry oxygen, resulting in a serious illness; symptoms include shortness of breath and blueness of the skin. Nitrate levels above 45 mg/L may also affect the ability of the blood to carry oxygen in other individuals, such as pregnant women and those with certain specific enzyme deficiencies. *If you are caring for an infant*, or you are pregnant, you should ask advice from your health care provider.

To better understand the report, please note the description of terms and abbreviations

Terms and Abbreviations Used:

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCL's are set to protect the odor, taste, and appearance of drinking water.

Public Health Goal (PHG): *The level of a contaminant in drinking water below which there is no known or expected risk to health.* PHGs are set by the California Environmental Protection Agency.

Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. Environmental Protection Agency.

Regulatory Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

Notification Level (NL): Health-based advisory levels established by DHS for chemicals in drinking water that lack *maximum contaminant levels (MCLs).*

Primary Drinking Water Standard or PDWS: MCLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

Maximum residual disinfectant level (MRDL): The level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap.

Maximum residual disinfectant level goal (MRDLG): *The level of a disinfectant added for water treatment* below which there is no known or expected risk to health. MRDLs are set the U.S. Environmental Protection Agency.

mg/L or ppm: Milligrams per liter, or parts per million (one ppm equals a concentration of about one cup in a 60,000 gallon swimming pool).

ug/L or ppb: Micrograms per liter, or parts per billion (one ppb equals about 4.5 drops in a 60,000 gallon swimming pool).

ppt: Parts per trillion (one ppt equals less than *1/200 of a drop in a 60,000 gallon swimming pool*).

pCi/L: Picocuries per liter (a measurement of radiation).

NA: Not Applicable.

ND: Not Detected at measurable amounts for reporting purposes.

Grains/gal: Grains per gallon. *A hardness measurement often used for softeners and dishwashers.* (17.1 mg/L = 1 grain/gal as calcium carbonate).

umhos/cm: Micromhos per centimeter (a measurement of conductance).

< Means less than the amount shown.
> Means more than the amount shown.

City of Lodi Annual Water Quality Report for 2006

(published April 2007)

Regulated Inorganic Chemicals *2004-2006 Data	MCL	Average *of Lodi* Wells	Range of *Individual* Detections	PHG *or* (MCLG)	Major sources in Drinking water
Arsenic, ug/L	10	4.4	9.7-ND	0.004	Erosion of natural deposits (see message below)

Barium, mg/L	1	<0.1	0.25-ND	2	Erosion of natural deposits
Fluoride, mg/L	2.0	0.05	0.37-ND	1	Erosion of natural deposits
Nitrate as NO_3, mg/L	45	9.2	36-ND	45	Leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits (see below)

Bacterial Water Quality Coliform Bacteria 2006 Data	MCL	Total Positive	Monthly High-Low Range	PHG or (MCLG)	Major sources in Drinking water
Total Coliform, Positive	5%/month	0.29 %	2.3 % - 0%	(0)	Naturally present in the environment
Fecal Coliform & E. coli	>1 /month	0	0 - 0	(0)	Human and animal fecal waste

Radioactivity, pico Curies per Liter, 2005 Data	MCL	Average of Lodi Wells	Range of Individual Detections	PHG or (MCLG)	Major Sources in Drinking water
Gross Alpha, pCi/L	15	2.86	15.9-0.16	(0)	Erosion of natural deposits
Radium 228	2	0.12	0.456-0	(0)	Erosion of natural deposits
Uranium, pCi/L	20	2.66	15.8-0	0.43	Erosion of natural deposits

Organic Chemicals with at least one confirmed detection in an operational City Well

Regulated Organic Chemicals 2006 Data	MCL	Average of Lodi Wells	Range of Individual Detections	PHG or (MCLG)	Major sources in Drinking water	Comments:
Tetrachloroethylene (PCE), ppb	5	0.06	2.0** - ND	0.06	Discharge from factories, dry cleaners, and auto shops (metal degreaser)	Found in Wells #6R, 8 & 12 at levels below the MCL.
1,1-Dichloroethylene (1,1-DCE), ppb	6	0.01	0.8**-ND	10	Discharge from industrial chemical factories. Local contamination from businesses using the chemical.	Only in Well # 2 at levels below the MCL
Trichloroethylene (TCE), ppb	5	0.08	2.1**-ND	0.8	Discharge from metal degreasing sites and other factories. Local ground contamination from businesses using the chemical. Breakdown product of Tetrachloroethylene (PCE).	Only from Wells # 2 & 18 at levels below the MCL.
Dibromochloro-propane (DBCP), ppt	200	36	320**-ND	1.7	Banned nematocide that may still be present in soils due to runoff/leaching from former use on vineyards.	See the update in the Water Quality section of this report

Secondary Standards Aesthetic Purposes (see note) *2004-2006 Data	Secondary MCL	Average of Lodi Wells	Range of Individual Detections
Chloride, mg/L	500	15	50-3.3
Color-Units	15	ND	ND
Specific Conductance, MS/cm	1600	345	810-120

Secondary Standards Aesthetic Purposes (see note) *2004-2006 Data	Secondary MCL	Average of Lodi Wells	Range of Individual Detections
Sulfate, mg/L	500	14	36-ND
Total Dissolved Solids, mg/L	1000	248	490-120
Turbidity, NTU Units	5	0.11	0.62-0.02

Note: Aesthetic problems are only associated with taste, smell, and other problems which are not a health risk.

Lead & Copper Rule Customer Tap Monitoring 2006 Data	AL (Action Level)	Average 90th Percentile	Range of Individual Detections	# Samples Exceeding AL (of 46 samples from 46 sites)	PHG or (MCLG)	Major sources in Drinking Water
Lead, 90th %, ug/L	15	<5.0	16-ND	1	2	Internal erosion of household plumbing
Copper, 90th %, mg/L	1.3	0.32	0.60-0.027	0	0.17	systems; erosion of natural deposits

Unregulated Contaminants Detected 2006 Data	Notification Level (NL)	Average of Lodi Wells	Range of Individual Detections
Trichloropropane, ug/L	0.005	0.003	0.089 - ND

Other non-regulated water constituents found in your water (for your information only)

Non-regulated water constituents, *2004-06 Data	Average of Lodi Wells	Range of Detections
Total Hardness, mg/L as CaCO3	133	340-40
Total Hardness, grains/gal.	7.8	19.9-2.3
Calcium, mg/L	29	78-8.2
Sodium, mg/L	22	56-1.3

Non-regulated water constituents, *2004-06 Data	Average of Lodi Wells	Range of Detections
Potassium, mg/L	6.9	13-2.3
Alkalinity (bicarbonate), mg/L	168	340-63
pH, in pH units	7.4	7.8-6.9
Magnesium, mg/L	14	35-4.9

*** Regulations call for monitoring of some constituents less than once per year because the concentrations of these constituents do not change frequently. Therefore, some of our data, though representative, are more than one year old.**
**** Averages are used for compliance determination due to the variable nature of individual analyses, and due the fact that any associated theoretical risks are not acute, but theoretically only after years of exposure to levels above MCLs.**